Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ TP: \_\_\_\_\_\_\_

CW54H: Composite Functions (Application)

Honors Geometry

Due Date: Thursday, Feb. 5th

Suppose our next math test has a bonus question. The directions simply state that if you answer the question correctly you will receive 5 bonus points and your test grade will be increased by 7% of your score. Let x = test score before answering the bonus question.

a. Write a function, f(x), to represent just the 5 bonus points.

b. Write a function, g(x), to represent just the percent of increase.

c. Explain the meaning of f(g(x))

d. Find f(g(75))

e. Explain the meaning of g(f(x))

f. Find g(f(75))

g. Does f(g(x)) = g(f(x)) in this problem? Why or why not?

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| --- | --- |
| 1) If f(x) =, and g(x) = , then f(f(4)) = ? | 2) If f(x) = x+ 4 and g(x) = 3x – 2 then  (f g(2)) = |
| 3) If and, then? | 4) If , create two equations for  and . |
| 5) If g(x) = 3x – 1 and f(x) = x2 + 1, compute  f g(x). | 6) Compute  using the functions  and |
| **For problems #7-12, use the table definitions of H(t) and r(t) shown below to find the indicated value.**   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | *t* | 2.0 | 2.2 | 2.4 | 2.6 | 2.8 | 3.0 | | *r(t)* | 1.2 | 1.5 | 3.0 | 2.8 | 2.5 | 2.0 |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | *t* | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | | *H(t)* | 2.8 | 2.6 | 2.5 | 2.0 | 1.0 | 2.2 | | |
| 7) (*r* ○ *H*)(2.5) | 8) (*r* ○ *H*)(1.0) |
| 9) (*H* ○ *r*)(2.2) | 10) (*H* ○ *r*)(3.0) |
| 11) (*H* ○ *H*)(2.0) | 12) (*r* ○ *r*)(2.4) |
| 13) A toy manufacturer has a new product to sell. The number of units to be sold, **x**, is a function of the price, p in the equation p(x) = 30 – 25x. The revenue earned is a function of the number of units sold: r(x) = 1000 – 0.25. **Find the function for revenue, r, in terms of the price, p.** | 14) The cost of manufacturing clocks is given by **C(x) = 67 + 40x -** . Also, it is known that in t hours the number of clocks that can be produced is given by **x = 8t**, where 1 ≤ t ≤ 12. **Express C as a function of t**. |
| 15) The regular price of a microwave in *x* dollars. Using a $5 off coupon makes the price. A 40% off sale makes the price. Which composite function represents the better deal? ***Explain.*** (use a theoretical value and calculate both compositions if that helps) | |